

CHAPTER 26

CLASS III SUPPLY POINT

This chapter covers the movement, establishment, arrangement, and operation of tactical Class III supply points. All examples concerning the number of personnel and amount of equipment are based on the supply section of a petroleum supply company. Although the personnel and equipment may change when you consider, for example, the quartermaster supply company, the principles and techniques will remain the same.

Section I. Movement

PLANNING

Before you begin to move, you must develop a plan. You will need to make sure you have all your personnel and equipment on hand when you begin to move the supply point. Find out how much time you have in which to prepare your crew and equipment for the move. There are some tasks that should be taken care of before you move. These include surveying the area to which you will be moving, coordinating with an engineer unit, and developing a flow plan. These tasks are described in the following paragraphs.

Take an Area Survey

Go over the area where the supply point will be located. Decide where to place the entire supply point. Choose an arrangement for the FSSP that fits the situation and the terrain. Also, decide where you want the truck parking, bulk storage (50,000-gallon collapsible tanks), and bulk reduction storage areas and other bulk reduction equipment.

Coordinate Engineer Support

When you go to look over an area for the first time, take a member of an engineer unit with you. After you choose a site for each part of the supply point, you can give this information to the engineers. With this information, the engineer unit can prepare individual tank sites, remove underbrush from bulk reduction areas, clear truck parking areas, and build an improved road through the site (if one is needed). If you do not have engineer support, your unit needs to prepare the site before you start setting up the equipment at the new site.

Develop a Flow Plan

After you select the specific sites for the parts of the Class III supply point, develop a flow plan so that you do not handle products and containers more than you have to. Figure 26-1, page 26-2, shows a suggested flow plan. The flow plan identifies steps which can be eliminated, combined, or changed to make the operation more efficient. It can also show unnecessary delays in handling and transporting. When developing the plan, consider the location of bulk storage, packaged product storage, bulk reduction, and can and drum cleaning areas. Also consider the flow of traffic through the supply point. Only one-way traffic should be permitted in the supply point. Study the area, and make up a flow plan before the supply point moves to the new location.

PERSONNEL

Make sure that all personnel are on hand for the move to the new site. Table 26-1, page 26-2, shows personnel needed to operate a Class III supply point. The table shows the usual strength levels of a supply section in a petroleum supply company. In some situations, you will have to augment personnel. The usual strength consists of a section chief, assistant section chief, and 31 crew members.

EQUIPMENT

Make sure your Class III supply point equipment is on hand and ready for use. If any items are not working properly, try to have them repaired or replaced before you move. Table 26-2, page 26-3, lists the major items of equipment it takes to operate a Class III supply point. The equipment may vary according to the situation. Make

sure you have the necessary vehicles needed to transport the equipment to the new site. Table 26-3, page 26-3, lists the vehicles you need.

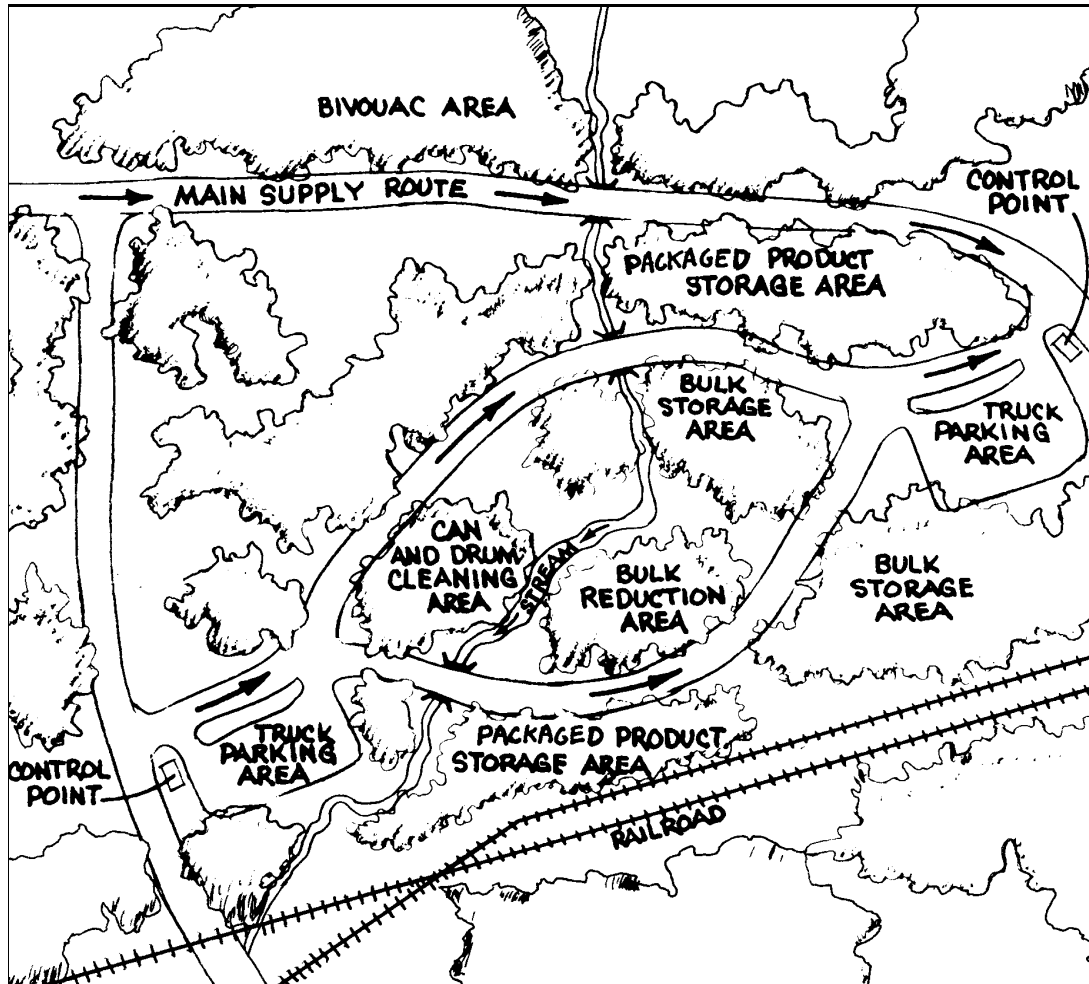


Figure 26-1. Flow plan for a suggested Class III supply point

Table 26-1. Personnel needed to operate a Class III supply point (based on the petroleum supply section of a petroleum supply company)

POSITION TITLE	GRADE	MOS/ASI	NUMBER
Section Chief	E7	77F40	1
Petroleum Heavy Vehicle Operator	E5	77F20/H7	1
Petroleum Inventory Control	E5	77F20	1
Petroleum Heavy Vehicle Operator	E4	77F10/H7	2
Petroleum Supply Specialist	E4	77F10	5
Petroleum Supply Specialist	E3	77F10	10

Table 26-2. Equipment required to operate a Class III supply point (based on petroleum supply section of petroleum supply company).

EQUIPMENT	NUMBER
Fuel System supply point	1
Collapsible fabric tank repair kit	1
500-gallon collapsible drum	3
Pressure control for filling nonvented drums	3
500-gallon collapsible drum tie-down kit	1
500-gallon collapsible drum towing and lifting yoke	1
50,000-gallon collapsible tank	6
20,000-gallon collapsible tank	4
10,000-gallon collapsible tank	4
350-GPM pumping assembly	10
Fuel handling hose line outfit (assault hose line)	1
Electric floodlight	1
Gas engine generator (3 KW)	1
Filter/separator	8
FARE system	1

Table 26-3. Vehicles needed to transport equipment in the Class III supply point.

VEHICLE	NUMBER
Semitrailer, stake, 12-ton, with equipment	4
Tractor truck and 5-ton, 6x6, long wheelbase, with equipment	4
Cargo truck and 5-ton, 6x6, long wheelbase, with equipment	2
Cargo trailer, 1½ ton, 2-wheel, with equipment	2

LOADING PLAN

Prepare a loading plan for moving the supply point. Your plans for loading personnel and equipment should apply to every type of transport that may be used in a movement. Make the plan before the move to allow time for packing. Base your plan on the type of transport to be used; the number of persons involved; and the type, size, weight, and quantity of supplies and equipment to be moved. When preparing the plan, consider the priority of loading and the safety of equipment and supplies in transit. Design the plan to permit quick and orderly unloading and regrouping of personnel and equipment. Once the equipment is loaded, make sure it is properly secured and make sure the pumps are braced, blocked, and tied.

MOVEMENT METHODS

Moving (or displacing) the supply point consists of taking it down at one place, loading it on transporters, and moving it to the new site. There are two ways you can do this, and the one you use depends on your situation. One way is to move the entire supply point to the new site. The other way is to move by leapfrogging. This means you move one-half of the FSSP to the new site and leave the other half at the old site to give limited service. In this way, support to the user is not interrupted during the move. Divide the system in half. The first thing you do when moving is to transfer product at the supply point to fuel transporters. Tell the drivers of these vehicles how to get to the new site or to meeting points where they can exchange trailers or transfer the load to other tank vehicles. You can also use these transporters to store and issue product on a temporary basis at the old and new supply points. You can start to take down the supply point just as soon as you move the fuel. The sequence in which you take down the equipment should be based on the requirements at the old and new sites. Usually, you dismantle the

FSSP first unless you are using the leapfrogging method. In any case, it is important that you work quickly once the order is given. Your main concern is to get to the new site as soon as possible and get set up.

EQUIPMENT MOVEMENT

You can take down most of the equipment without following procedural steps or guidelines. Do it as simply and quickly as you can, but avoid spills and accidents. The three items which need your special attention are the FSSP, the 50,000-gallon collapsible tank, and the FARE system. Chapter 15 tells you how to move the FARE system. Movement of the other two items is discussed below.

Fuel System Supply Point

First, drain the fuel from the collapsible tanks into the hose system. Close the valves at each tank so that the fuel does not flow back into the tanks. Then place a container under each tank drain port and drain the fuel that is left in the tank. Stow the tanks in their carrying case. Now, starting at the receiving point, drain the fuel from the receiving side of the system into the discharge side. Keep the discharge pump running for suction. Disconnect the hose assemblies and stow them in containers (when available). Be sure to install all dust caps and plugs on the hose assemblies as you dismantle them. Then disconnect the discharge pump and drain the fuel from the hose assemblies on the discharge side of the system. Disconnect the hose assemblies and place them in containers (when available).

The 50,000-Gallon Collapsible Tank

First, drain the tank. Use a 350-GPM pumping assembly for suction. Then disconnect under the tank drain port and drain the fuel left in the tank. Place a container under the tank drain port and drain the fuel left in the tank. Then drain the fuel from the hose assemblies, disconnect them, and place them in canvas bags.

Section II. Site Selection

GUIDELINES

Your next higher headquarters will assign you an area of operation, but you must choose your site within that area. You should make sure the Class III supply point is located as close to supported units as dispersion factors, sources of supply, and the tactical situation permit. Use vacated forward sites or existing facilities when you can. The site you choose should be reasonably level and well-drained to prevent water damage. Avoid low areas or fill them in so that vapors do not collect. You may choose a site in low hills or rolling country, but never choose one uphill or upstream from other installations which would be in the path of escaping fuel. Concealment is important also. Select a site that gives enough cover from enemy observation and attack. Your site should be large enough to meet the needs of product supply and distribution plans, but not so large that handling operations become inefficient. Provide for at least two storage areas with balanced stocks in each. The site should have easy access to road nets, and at least one road should run through the supply point. However, do not choose a site that is near important communications and population centers that may be enemy targets. There should be two large areas (one in the front and one in the rear) which can be used for truck parking. Keep in mind that you may have to expand the supply point. The site you choose should have enough space for you to add more collapsible tanks and truck parking areas. Figure 26-2, page 26-5, shows an ideal site and sites that you should not use.

SELECTION CRITERIA FOR FSSP

When you select the FSSP site, consider cover and concealment, road nets, dispersion factors, terrain, and site preparation requirements. Make sure the site is suitable for the fuel system layout. Standard arrangements of the FSSP are shown in Section III.

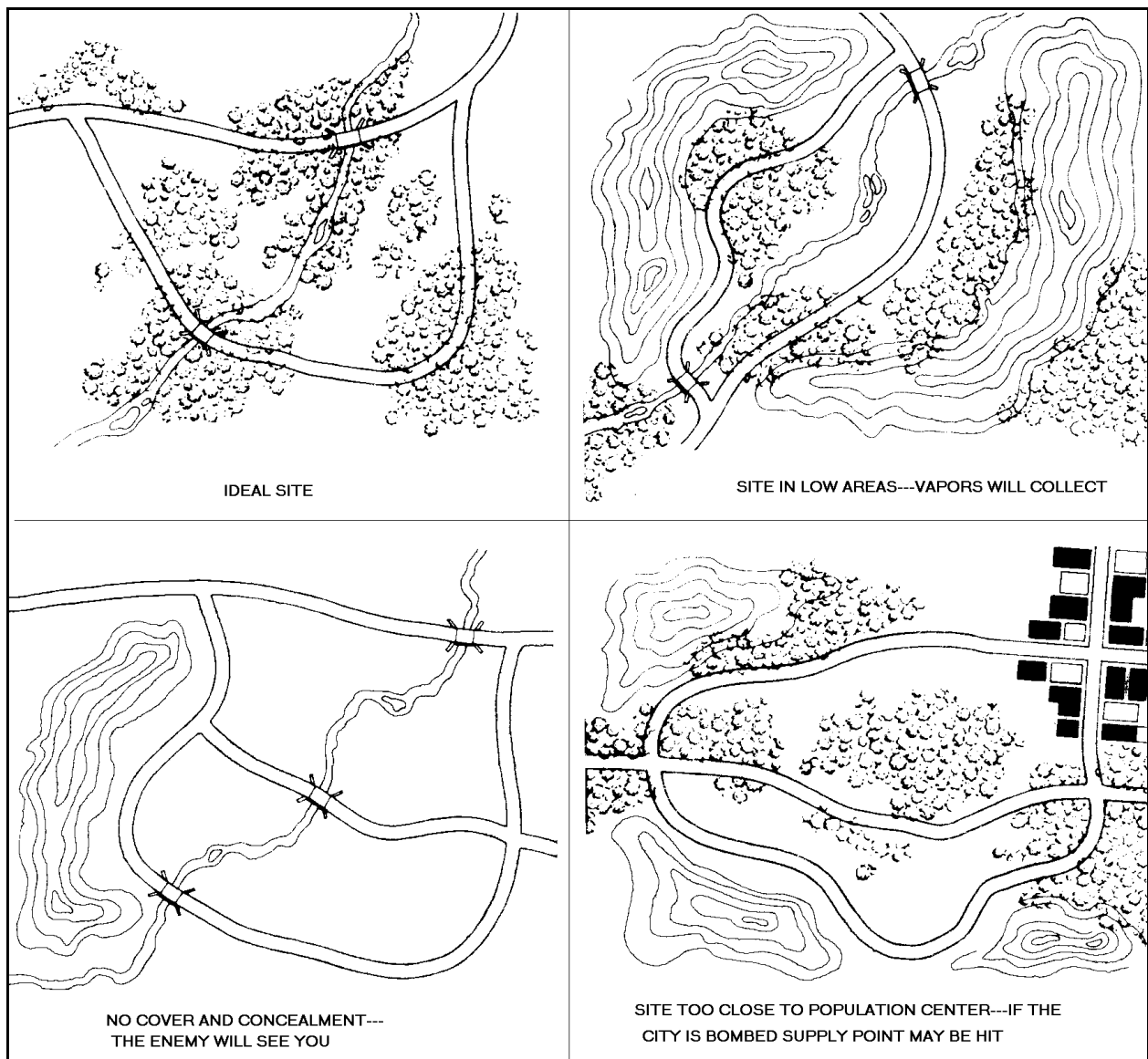


Figure 26-2. Site selection guidelines

Cover and Concealment

Select a site for the collapsible tanks, pumps, and filter/separators that is in the woods or in a tree line where the natural shadows disguise the telltale shapes. Use camouflage nets if you have them. When you lay hoseline, make use of natural terrain contours and vegetation to break up straight lines. One way to do this is to cut branches, stick them in the earth under the hose, and then weigh them down with the hoseline. Where you have deep grass or other vegetation to break up straight lines. Where you have deep grass or other vegetation, bend it over the hoseline to hide the hose so that it is not seen from the air.

Road Nets

Choose a site for the receiving, truck bottom loading, and vehicle refueling points that is next to a road in the Class III supply point. You can then load or unload trucks and refuel vehicles without leaving the road nets in the supply point.

Distance Between Items

You must consider the distance between items when you select the sites for the equipment in the FSSP. In other words, how far apart should you put your components? Table 26-4 shows the usual distances between them. These distances are approximate, and they can vary with the terrain, natural cover, concealment, hose available, and road nets. However, you must put the 10,000-gallon collapsible tanks at least 40 feet apart.

Table 26-4. Usual distance between components of the FSSP

FROM	TO	DISTANCE NEEDED (FEET)
Receiving Manifold	Receiving pump	60
Receiving pump	Manifold on first tank	60
10,000-gallon tank	10,000-gallon tank	40
Manifold on last tank	Discharge pump	60
Discharge pump	Filter/separators	40
Filter/separators	First fuel-servicing nozzle	60
Fuel-servicing nozzle	Fuel-servicing nozzle	25
Last fuel-servicing nozzle	First 500-gallon drum filling point	75
500-gallon drum filling point	500-gallon drum filling point	50
Last 500-gallon drum filling point	First bottom loading point	75
Bottom loading point	Bottom loading point	75

Terrain

Select level terrain for the FSSP. Look for a tank site without slopes. A large slope may cause filled tanks to roll sideways, backwards, or forward. Put the pumps and filter/separators on level ground. Try to place the discharge pump at a lower level than the collapsible tanks so that there will be good suction to the pump.

Site Preparation

Deal with these three major items of equipment in the FSSP--the collapsible tanks, the pumps, and the filter/separators. Slope the tank sites gently toward the manifold end to help drain the tanks when they are removed. Slope the site for each tank no more than 3 to 6 inches in the direction of the tank's fill port. Build a fire wall around each tank. Make it large enough to hold the contents of the tank and 1 foot of freeboard. To do this, build the fire wall 3 feet high and 18 inches wide at the top. Make the inside dimensions of the fire wall 26 feet by 26 feet. Maintain a distance of 3 feet from the edge of the tank to the base of the fire wall. If an engineer unit prepares the site, give them this information. The pump and filter/separator sites must be cleared of dry grass, leaves, and trash.

SELECTION CRITERIA FOR EQUIPMENT

You must also select a site for other equipment in the Class III supply point. This equipment includes 20,000-gallon collapsible tanks, 50,000-gallon collapsible tanks, and 500-gallon collapsible drums. The FARE system site is discussed in Chapter 15. Use the information in the following paragraphs to help you select a site for this equipment.

The 20,000-Gallon Collapsible Tanks

The site you choose for the 20,000-gallon collapsible tanks should be similar to that for the 10,000-gallon collapsible tanks. Choose a site that is nearly level with a gentle slope toward the manifold end of the tank. Space the tanks about 150 feet apart. Build a fire wall around each tank. Make it large enough to hold the contents of the tank and 1 foot of freeboard. To do this, build the fire wall 4 feet high and 18 inches wide at the top. Make the

inside dimensions of the fire wall 35 feet long and 31 feet wide. Maintain a distance of 4 feet from the edge of the tank to the base of the fire wall. If an engineer unit prepares the site, give them these measurements. Place the discharge pumps at a level lower than the tanks to aid pump suction.

The 50,000-Gallon Collapsible Tanks

Choose a site for the 50,000-gallon collapsible tanks that is similar to that for the 10,000- and 20,000-gallon collapsible tanks. Build the fire wall 4 feet high and 18 inches wide at the top. Make the inside dimensions of the fire wall 73 feet long and 33 feet wide. Place the discharge pumps at a level lower than the tanks to aid pump suction.

THE 500-Gallon Collapsible Drums

Select a firm, level site near the source of supply. Select a site that allows drums to be easily lined up for filling and rolled away after filling.

SELECTION CRITERIA

Select a reasonably level site that can hold container stacks. Choose a site with good drainage so that water does not damage the containers. Avoid low areas because dangerous vapors collect in them. Do not use an area with a cinder base or marshland and wasteland overlaid with peat; they are usually damp. Use such areas only if no other site is available. Be sure the site has natural cover and concealment and is large enough for future expansion. Do not locate near other areas of operation. Stay at least 500 feet away for low-flash products and 200 feet for high-flash products. Your site must be away from overhead electric lines so a broken wire cannot fall on the drums. Clear the site of all underbrush that may get in the way or present a fire hazard. Spread sand, gravel, or similar material over areas where you store containers. They help drain the area and provide a more stable base for the stocks. Do not use ashes or cinders because they are corrosive. Build a dike at least 18 inches high around each major storage division in which low-flash products are stored. This dike must be able to hold all the liquid in the drums stored in the area and have a freeboard of at least 6 inches. Choose a site for at least two clearing (incoming and outgoing) areas. These will be used to segregate incoming and outgoing mixed loads (railroad cars or truckloads). Each area should have its own site. The sites should be located next to each other so that the same personnel can operate both areas.

Section III. Layout

SITE PREPARATION

Stop the convoy bringing the supply point equipment at an agreed on location which is close to the site and well suited for off-loading of equipment. You can begin off-loading and layout operations at once if an engineer unit has already prepared the site. If your site is not prepared, you must prepare it. Your first concern as you begin the layout is to be able to receive and issue bulk petroleum as soon as possible. For this reason, off-load and lay out the FSSP first. Then turn your attention to bulk reduction operations. Set up the bulk reduction issue and storage area. Place in this area the 50-GPM pumping assemblies, 500-gallon collapsible drums, 55-gallon drums, and 5-gallon cans. You can now begin to issue both bulk and packaged products. Next, set up the bulk storage area with its 50,000-gallon collapsible tanks and 350-GPM pumping assembly. Finally, set up the supply point safety and security items.

STANDARD FSSP ARRANGEMENTS

Lay out the FSSP to take advantage of the terrain, natural cover, concealment, available hose, and road nets. If you must handle two types of fuel (for example, JP-8 and MOGAS), you may have to divide the fuel system (see Chapter 28). Some typical arrangements are shown in Figure 26-3, page 26-8. If none of these arrangements are suitable, you may change them to fit your needs.

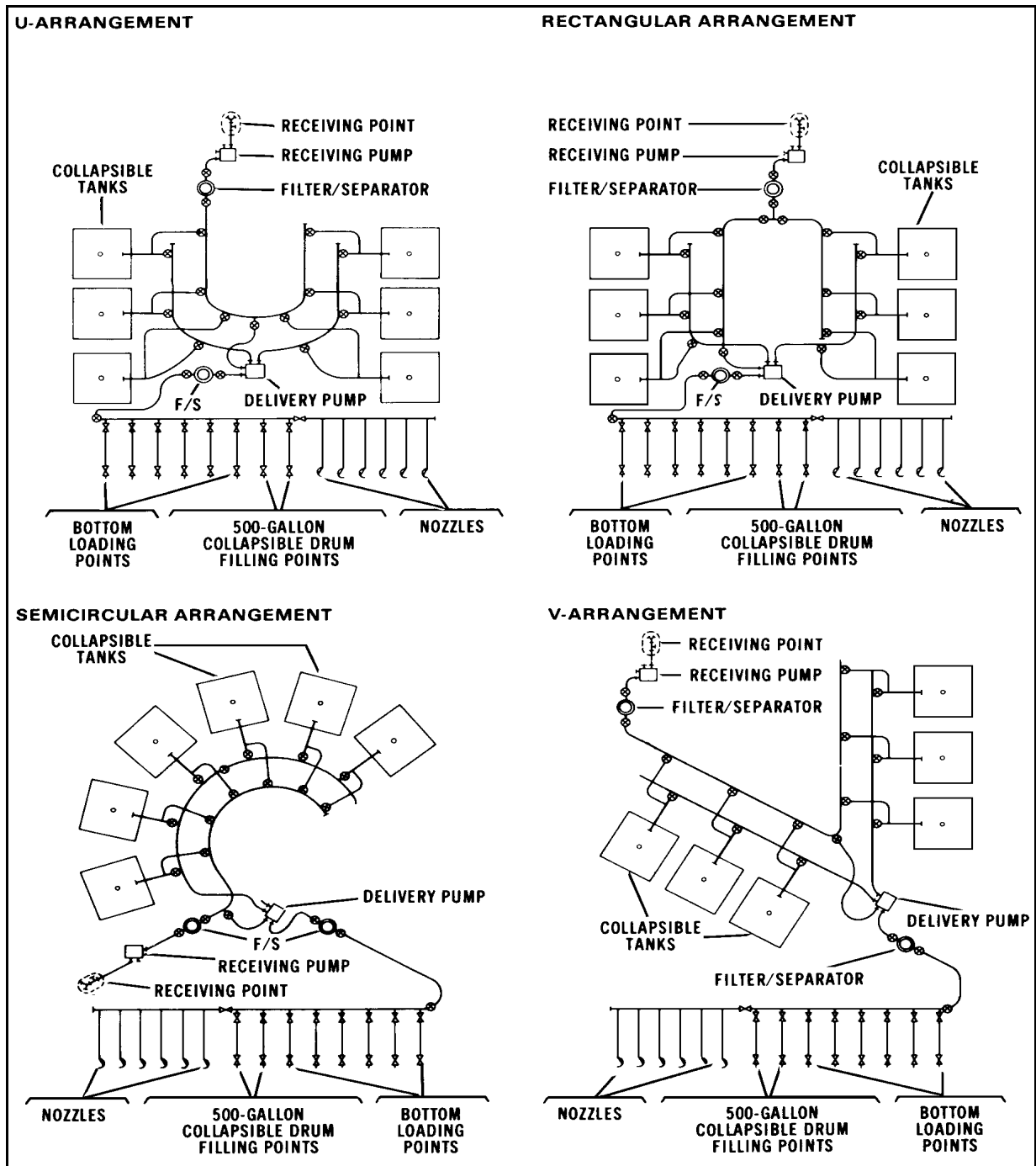


Figure 26-3. Typical arrangements

FSSP COMPONENTS

The best way to lay out the FSSP is to put the collapsible tanks in their prepared sites first. Then put the pumps and filter/separators in place and lay out all the fitting assemblies and hoses. Then make the connections and attach the fuel- and oil-servicing nozzles. Make sure you have placed the components to conform to the arrangement that you chose for the fuel system. Lay out the components of the fuel system as discussed below.

- Collapsible Tanks. Place the tanks at the prepared sites so that when you take them from their containers and unfold them, they are in position. Be careful not to step on the tanks as you unfold them. Then inspect the tank fabric for cuts, snags, or other damage. Also, make sure the tank filler and vent assemblies are in good working order.

- Pumps. After you put the 350-GPM pumping assemblies in place, lower the retractable support and chock the wheels of each pump. Then drive a ground rod into the ground near each pump. Attach a ground cable to the rod and to the pump frame.

- Filter/Separators. After you place the 350-GPM filter/separators in position, put shims under the skids to help level them. Drive a ground rod into the ground near each filter/separator, and attach a ground cable to the rod and to each unit. The last thing you do is to connect a hose or a pipe to the automatic water drain port to carry water away from the unit.

- Fitting Assemblies and Hoses. Put all fitting assemblies and hoses in their proper places. Make sure all suction hose is on the receiving side of the system and all discharge hose is on the dispensing side. Place 3-inch discharge hose at the tank truck bottom loading points. Place 1½-inch discharge hose at the 500-gallon collapsible drum filling points and 1-inch discharge hose at the vehicle refueling points. Now, start at the collapsible tanks and connect all hose and fitting assemblies. Make sure all dust plugs and caps are left on the hoses and fittings until they are connected into the system.

- Fuel- and Oil-Servicing Nozzles. Attach the six nozzles to the 1-inch discharge hose assemblies. Make sure the nozzle dust cap covers the spout of each nozzle. Make a support for the nozzles so that they do not lie on the ground when not in use.

OTHER SUPPLY POINT EQUIPMENT

When setting up the layout of the Class III supply point, allow for the 50,000-gallon collapsible tanks, and the FARE system. These components are described in the following paragraphs.

The 50,000-Gallon Collapsible Tanks

The 50,000-gallon collapsible tank is the largest container for storing bulk petroleum in the Class III supply point. Each section of a petroleum supply company has four of these tanks. The site on which the tanks are set up is usually called the bulk storage area. For best results, use the four tanks separately. This way your Class III supply point can handle the two most commonly used fuels: MOGAS and JP-8. For example, JP-8 may be placed in the FSSP while MOGAS may be placed in the 50,000-gallon collapsible tanks (two tanks for each product). If you do not need this much flexibility, you can manifold the four tanks together so that they will hold 200,000 gallons. The tanks are serviced by 350-GPM pumping assemblies. Set up the tanks the same way you set up the 10,000-gallon collapsible tanks. Then place the pumps and connect the fitting assemblies and hoses.

FARE System

The layout discussed here applies to the FARE system when it is used in gas-station-type operations for refueling ground vehicles. When you lay out the FARE system to refuel aircraft, you must consider many other factors that this chapter does not cover. See Part III. Lay out the FARE system in the way that best suits your needs. Use all or part of the hose provided. You can plan the layout to avoid obstacles, take advantage of terrain features, or operate in a limited space. However, you must have at least 25 feet between vehicles. A typical layout of the FARE system is shown in Figure 20-2, page 20-2.

BULK REDUCTION STORAGE AREA

Set up, in the bulk reduction storage area, a separate stocking area for each product and type of package. If you have an area for each, you can inventory and control the stock more easily, and you are not as likely to identify

the product incorrectly. Use a block system to separate large amounts of stored supplies so that the entire stock of one product is not lost if there is an enemy attack or a fire. Plan the exact layout and size of the stacking area according to local conditions and safety requirements. Aisles between double rows of drums (units) are usually 9 to 10 feet wide. You can reduce the width to 4 feet if this leaves you enough room to handle the product. Allow 15 to 30 feet for aisles between sections of containers and 50 to 150 feet between blocks.

Layout for 5-Gallon Cans

A specific layout of a stacking area for 5-gallon cans is suggested. This layout is shown in Figure 26-4.

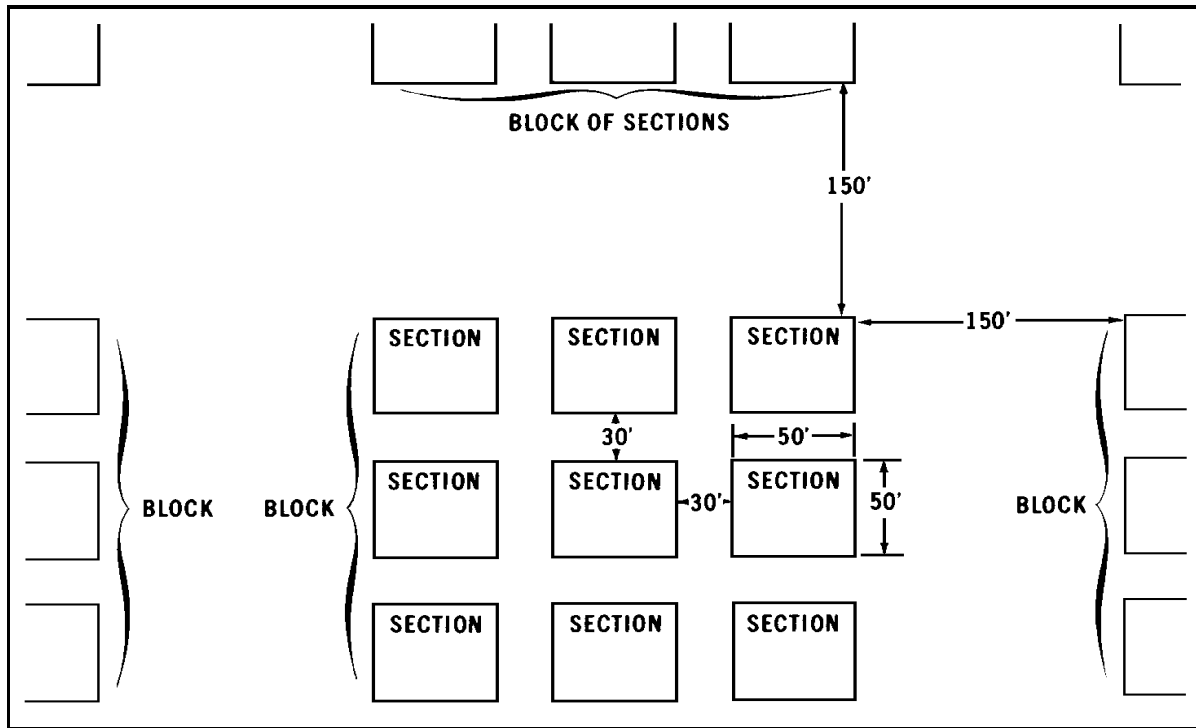


Figure 26-4. Suggested layout for 5-gallon cans

Layout for 55-Gallon Drums

Plan the layout of a stacking area for 55-gallon drums according to the type of product in the drums and the terrain. Petroleum products are classified as light or low flash (flash point at or below 80°F) and heavy or high flash (flash point above 80°F). Some high-flash products are kerosene, diesel fuel, and lubricants. Some low-flash products are gasoline and jet fuels. Store low-flash and high-flash products in separate areas. A suggested layout of a stacking area for 55-gallon drums of low-flash products is shown in Figure 26-5, page 26-11. Blocks are made up of nine 70-foot-square sections, and each section is divided into five parallel units with 9-foot aisles between units. The width of the aisles may be reduced to 4 feet if this leaves you enough handling room. Rows of drums containing low-flash products must be no more than 35 drums long and three tiers high. You may store a larger quantity of high-flash products in a block. The number of sections in the suggested layout is a guide only. You can lay out the drum stacking area any way that suits the terrain, but the rows of drums must be no more than 35 drums long, and you must leave enough space between units, sections, and blocks.

Layout for 500-Gallon Collapsible Drums

There is no set method for laying out a storage area for 500-gallon collapsible drums. A suggested layout is shown in Figure 26-6, page 26-11. Make double rows, five drums long, with the fill ports facing outward. Leave 3 feet between the butts of the drums and 9 or 10 feet between double rows. This gives vehicles and personnel easy

access to the drums when they load or rig them for delivery. Use the section and block plan when you store a large number of drums. However, you should put only three double rows in a section and make three sections to a block. In each section, you have 300 drums; and in each block, you have 90 drums. Leave 30 feet between sections and 150 feet between blocks.

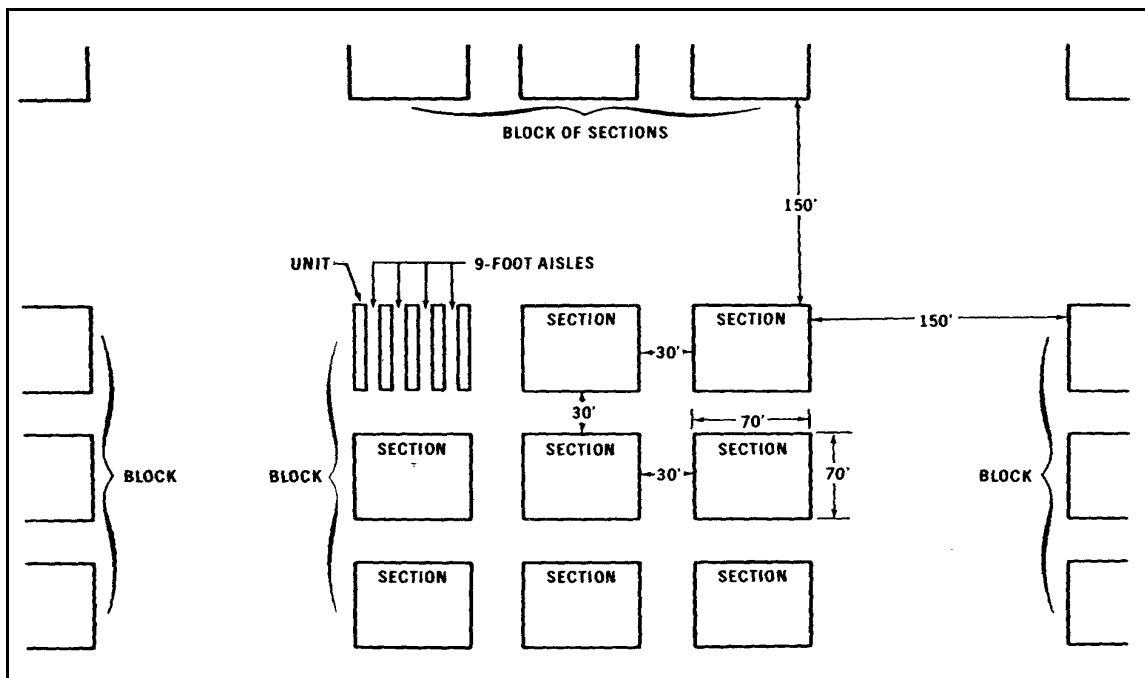


Figure 26-5. Suggested layout for 55-gallon drums

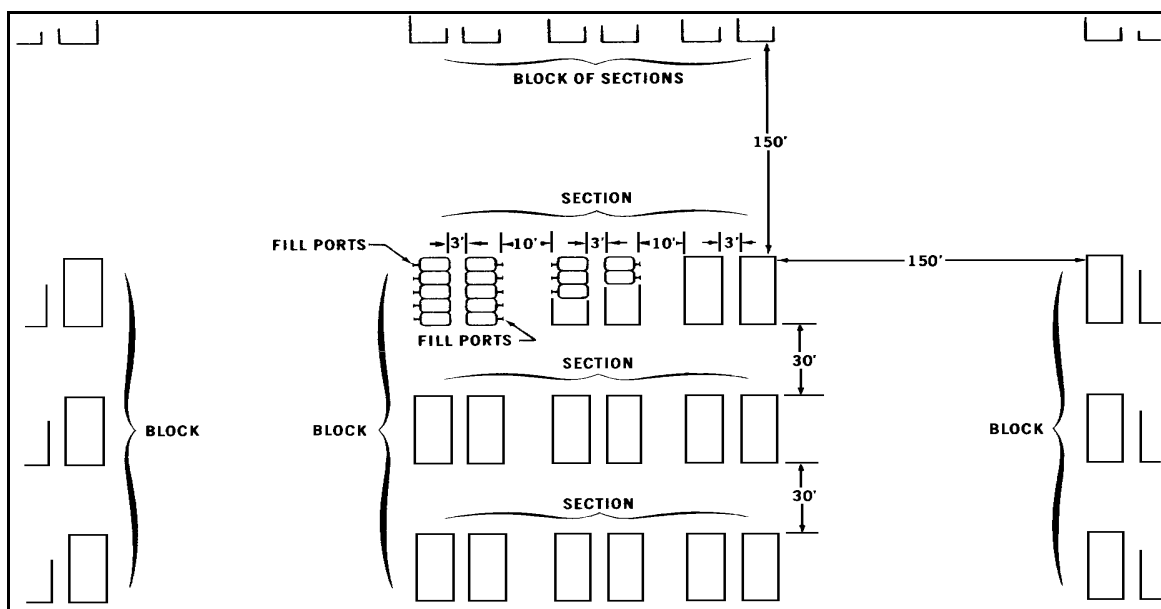


Figure 26-6. Suggested layout for 500-gallon collapsible drums

SAFETY AND SECURITY ITEMS

Once your supply point is set up, you must take steps to make sure it is safe and secure. To do this, follow the steps listed below.

- Checkpoints. Set up a checkpoint at the entrance and one at the exit of the operating area. Give personnel coming to the area a safety briefing at entrance checkpoint. Fire prevention at the checkpoint is discussed in Chapter 2. Use the checkpoints not only to control the vehicles going in and out, but also to account for the receipt and issue of petroleum in the supply point.

- Fire Plan. Develop a fire plan. See Chapter 2 for details.

- Signs. You must set up many different types of signs in the area of operation. Place stock locator signs at petroleum storage areas, including bulk reduction storage sites. Place signs identifying NO SMOKING areas and dangerous areas throughout the supply point. You must also set up speed control and traffic direction signs.

Section IV. Operation

FUEL FLOW

Before you can work at a Class III supply point, you must understand how petroleum flows through it. You should know where it is received, which items of equipment transfer and store it, and where and how it is issued. Figure 26-7 is a flow plan for a suggested Class III supply point. A transporter brings the fuel to the Class III supply point where it is routed to the FSSP and the four 50,000-gallon collapsible tanks. From the FSSP, the fuel can either be issued or put into containers and stored in the bulk reduction storage area until it is issued. Fuel stored in the 50,000-gallon collapsible tanks is issued as bulk petroleum. There are only a few steps in the flow of petroleum through the entire Class III supply point, but the process is not so simple when you look at the flow of petroleum through the FSSP and the 50,000-gallon collapsible tanks.

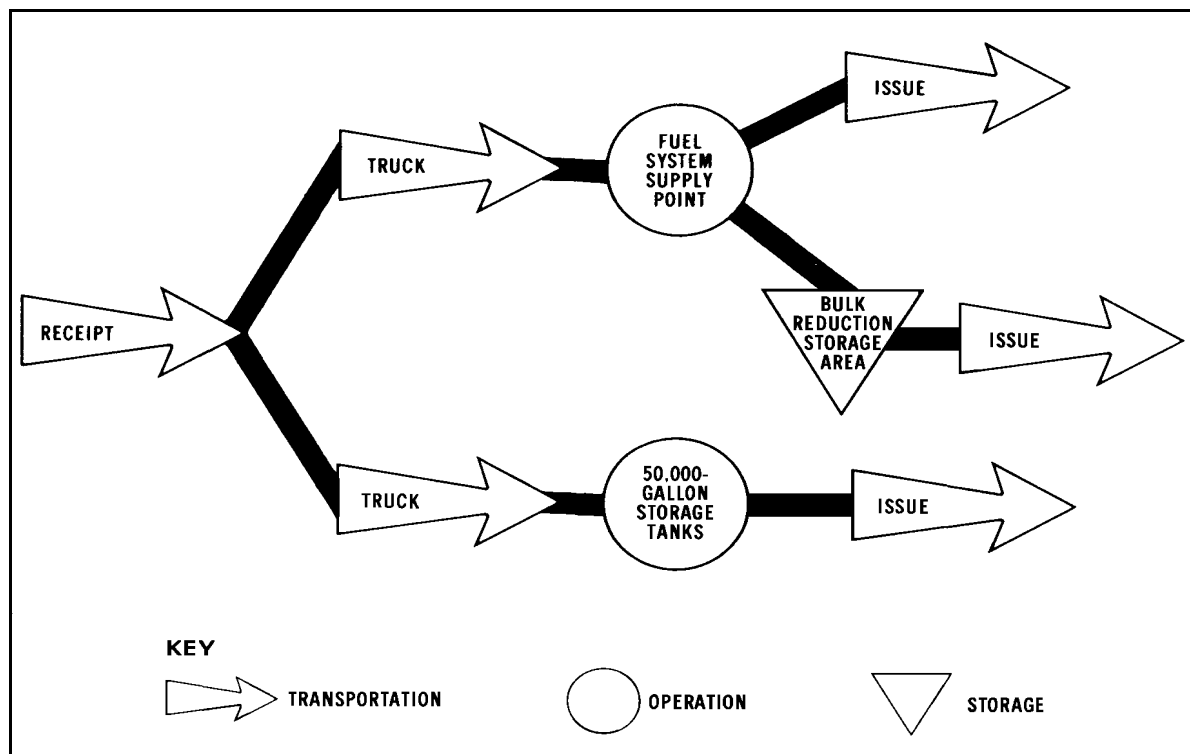


Figure 26-7. Flow plan for a suggested Class III supply point

Flow Through the FSSP

The first step is to inspect the fuel when it arrives. The product then enters the system through the receiving manifold. It usually moves under suction from one of the 350-GPM pumps used as a receiving pump. The product may also move under positive pressure from a transporter, pipeline, or hoseline. When you have both filter/separators installed on the delivery side of the system, the receiving pump distributes the product directly to the tanks through the hoseline manifold. The other 350-GPM pump is used to draw fuel from the tanks and discharge it through the two filter/separators into the hose header system. When you leave one filter/separator installed on the receiving side of the system, the receiving pump distributes the product to the receiving filter/separator and then to the collapsible tanks. After that, the flow of product is the same, except the fuel is drawn through only one filter/separator on the discharge side of the system instead of two. You can also draw from the supply source directly to the discharge side of the system. This procedure bypasses the storage tanks. You need only one pump and one filter/separator for this operation.

Flow Through the 50,000-Gallon Collapsible Tank

The first step is the inspection of the product. The fuel then enters from the transporter through a receiving manifold made up of a suction hose and gate valve. The product usually moves under suction from a 350-GPM pumping assembly that distributes it into the 50,000-gallon collapsible tank. Another 350-GPM pumping assembly acts as a discharge pump and distributes the fuel from the tank to the discharge hose assembly. The discharge hose assembly consists of a gate valve and discharge hose. From the discharge hose assembly the product moves into a transporter.

PERSONNEL

How you use your personnel is one of the most important parts of managing a Class III supply point. In other words, how many do you need for a specific operation? Where should you place them in relation to the equipment? What tasks should you give them to do? It is important that you assign specific tasks to your personnel at the Class III supply point, but you should also try to be flexible. The best way to use all of your personnel wisely is to let the job determine the assignment. For example, if you have no issues scheduled for the FSSP, you can use the workers assigned there to improve the fire walls around the collapsible tanks. On the other hand, there may be a time when the supply point, or a section of it, is not busy. You may then use your workers to improve the camouflage and concealment of the area, improve drainage ditches and roadways, make sure the safety equipment is serviceable, and do operator and organizational maintenance on the equipment in the supply point. Although the number of persons you assign to a specific task may vary greatly with your mission, it is still possible to obtain an average number for each operation.

FSSP Operations

For a single shift, you need eight workers to operate the FSSP efficiently. Place them at certain strategic points in the operation as described below.

- Receiving Side. Assign two workers to the receiving manifold. Make them responsible for transferring bulk petroleum from the transporter to the fuel system. They operate all valves at the receiving point and make all necessary hose connections.

- Pumps and Valves. Assign three workers to the pumps and control valves. Have one worker operate each pump, and have the third worker control the valves on the discharge and receiving manifold of the collapsible tanks. Once the pumps are started, they can be monitored by one worker. This enables two workers to devote their full time to valve control and fuel flow problems.

- Dispensing Side. Assign three workers to the delivery side of the system (six 5-gallon can and 55-gallon drum filling points and two 500-gallon collapsible drum filling points). Make them responsible for dispensing petroleum and controlling the fuel flow. They prepare the various filling points, operate the control valves, and make all necessary hose connections. When tank vehicles are filled, have the truck driver help dispense the fuel.

The 50,000-Gallon Collapsible Tank Operations

For a single shift, you need four workers to operate one 50-gallon collapsible tank. You generally have one 50,000-gallon collapsible tank, two 350-GPM pumping assemblies (one receiving pump and one discharge pump), and one dispensing line. In the Class III supply point, you use the 50,000-gallon collapsible tank mainly for large volume distribution of bulk petroleum. Place the workers as follows:

- Place one worker at the receiving point. Make this worker responsible for transferring bulk petroleum from the transporter to the tank. Have the worker operate the valves and make all necessary hose connections.
- Place one worker at each of the two 350-GPM pumping assemblies. Make each worker responsible for coordinating the flow of petroleum.
- Place one worker at the dispensing line. Make this worker responsible for issuing bulk petroleum and controlling the fuel flow in the dispensing line.

The 500-Gallon Collapsible Drum Filling Operations

You need only two workers to do this job efficiently. However, there are several methods of filling 500-gallon collapsible drums. Two of the most commonly used methods are to fill the drums directly from the FSSP or to use the 50-GPM pumping assembly. The positioning and the tasking of the crew vary with each of these methods. When drums are filled directly from the FSSP, assign one worker to the control valves of the filling point. Make this worker responsible for controlling the flow of petroleum to the drums. Assign the other worker to the drums. Make this worker responsible for preparing the drums for filling, making all connections, and monitoring the filling operation. When the 50-GPM pumping assembly is used, you still need two workers for the filling operation. Have one worker operate the 50-GPM pumping assembly and control the flow of petroleum. Assign the other to the drums with the same responsibility as in the method described before. For both methods, you need a vehicle to remove the filled drums to the bulk reduction storage area.

The 55-Gallon Drum Filling Operations

Although you usually fill 55-gallon drums directly from the FSSP, you can also use the 50-GPM pumping assembly with the hose and fitting kit. When you use six fuel- and oil-servicing nozzles on the FSSP, you need 10 workers at each nozzle. You also need two workers to bring empty drums to the filling points and two workers to remove filled drums to the bulk reduction storage area. Make the six workers at the servicing nozzles responsible for bonding the nozzles to the containers and filling the drums to the proper level. If you have a forklift, use it to move the filled drums to the storage area.

The 5-Gallon Can Filling Operations

There are two methods of filling 5-gallon cans. You can use the fuel- and oil-servicing nozzles at the FSSP or the 50-GPM pumping assembly with the hose and fitting kit. The number of workers you need to fill the cans varies with the method you use. When the cans are filled directly from the FSSP, the operation is essentially the same as for the 55-gallon drum. When the cans are filled using the 50-GPM pumping assembly with the hose and fitting kit, you need seven workers. Because this method is usually conducted near the bulk reduction storage area, you need only one worker to bring empty cans and one to remove the filled ones. Also, have one worker operate the 50-GPM pumping assembly and control the flow of petroleum. Place one worker at each of the four dispensing nozzles of the hose and fitting kit. Have them bond the nozzles to the cans and fill them to their proper level.